

FY 2011 APPROPRIATIONS
Department of Defense

<u>Project Name and Location</u>	<u>Purpose</u>	<u>Amount</u>	<u>Recipient</u>	<u>Taxpayer Interests</u>
4-D Data Fusion Visualization, Oahu, Hawaii	Continues development of capability to process, fuse and rapidly visualize very large amounts of spatial and temporal data in an immersive environment to facilitate situational awareness and understanding of the battlespace.	\$3,200,000	Makai Ocean Engineering	Accurate volumetric data is important to understanding the performance of sensors in the undersea battlespace. The 4-D Data Fusion Visualization program takes very large amounts of data from numerous different sensors and databases and displays complex imagery, terrain, and volumetric data on PCs, as opposed to supercomputers. The visualization of the data allows improved situational awareness and allows interactive manipulation of location and time.
Army Conservation and Ecosystem Management, Hawaii	Supports U.S. Army Pacific's efforts to be a good steward of its lands through tested conservation practices, monitoring for ordnance, fire control/management, and community outreach.	\$5,000,000	U.S. Army Pacific	U.S. Army Pacific uses these funds to ensure good stewardship of its military bases and training lands. It is a modest investment that provides innovative fire control and management to reduce the fire risk to training areas and surrounding communities. The Army is better able to properly care for endangered species and valuable cultural sites on its property. These funds can be used to disseminate safety information and community outreach, to test waters for hazards. The Army's ability to respond quickly will help to calm community concerns and increase credibility. Working side by side to preserve precious environmental resources promotes good will and greater understanding between the U.S. Army and the local civilian populace.
Bow Lifting Body Ship Research, Honolulu, Hawaii	Develops, builds, and tests a 160-foot Bow Lifting Body vessel to support Advanced Bow Lifting Body Ship technology transition to the Navy.	\$26,400,000	Pacific Marine	The demonstration of a Bow Lifting Body on a 160-foot vessel would allow advanced testing of design concepts to enable the transition of the technology to current and planned Navy ships. Lifting bodies are a key method to improve the stability, speed, and efficiency of a wide variety of surface vessels, allowing significantly improved performance.

Center of Excellence for Research in Ocean Sciences (CEROS), Multiple Locations, Hawaii	Provides competitive grants for innovative concept and technology development in ocean and marine research for the Department of Defense.	\$10,000,000	Multiple Contractors	The National Defense Center of Excellence for Research in Ocean Sciences employs a competitive, low-overhead process to fund and manage technology projects for improved warfighter capabilities in cooperation with the Defense Advanced Research Projects Agency. The process seeks specific research and development requirements from the Department of Defense, solicits projects, sets quantifiable metrics for success and awards competitive one year, fixed price, no fee contracts.
Chemical Vapor Composite Silicon Carbide and Silicon Carbide Corrugated Mirror Processes for the SM-3 Block IIA Telescope, Kauai, Hawaii	To replace Beryllium, a hazardous and toxic metal, currently used in the military's Standard Missile seeker telescopes with Silicon Carbide (SiC)	\$4,000,000	Trex	SiC has superior optical properties, a proven radiation hard compound, and is stiff, and thermally stable. Current Beryllium seeker telescopes require special handling and incur expensive disposal costs due to environmenatl restrictions. SiC has neither handling nor environmental restrictions.
Communications Support Environment-State (CSE-State), Honolulu, Hawaii	Provides assured interoperable emergency communications capabilities for emergency responders in the event of natural disasters, terrorist attacks or cyber incidents.	\$10,000,000	Hawaii Air National Guard	Homeland Security missions present significant challenges to ensure interoperable communications among all responding mission partners. To meet this critical need, the Communications Support Environment will guarantee needed emergency communications capabilities at the state level in response to natural disasters, terrorist attacks, and cyber-based incidents.
COSITE Interference Mitigation Suite, Honolulu, Hawaii	Provides a response to a Joint Urgent Operational Needs Statement submitted by U.S. Central Command, to simultaneously operate the Counter IED Electronic Warfare (CREW) system and Blue Force radios in theater.	\$2,000,000	Terasys Technologies LLC	Will mature digitally tunable RF absorptive filter technology and complete test and evaluation and independent validation and verification in preparation to install these components on fielded systems. It will enable Blue Force communications to be interoperable with high-power transmitters such as long range radios and electronic warfare systems.

Development of Mobile Energy Stations and Applications, Honolulu, Hawaii	Develop a lightweight integrated transportable energy mobile and fixed photovoltaic and hybrid renewable energy system and battery technologies.	\$6,583,000	Greenpath Technologies	Current costs associated with fuel consumption to power the technologies and equipment in the field account for sizeable operational costs. Development of renewable energy systems and batteries will provide for dedicated use of high-cost fuels for transportation and transit. This would facilitate mobility and cut down the volume of supply lines that put convoys at risk.
Eagle Vision for the Hawaii Air National Guard, Oahu, Hawaii	Upgrades the Hawaii Air National Guard’s Eagle Vision commercial satellite downlink program with capability to receive extremely high resolution imagery from commercial satellite providers.	\$8,100,000	Hawaii National Guard	The Hawaii National Guard possesses one of five Eagle Vision systems to access imagery from commercial satellites. This imagery is used on a variety of disaster response and homeland security missions, and the Hawaii Eagle Vision system has been used to support numerous military exercises and missions in Thailand, India, Japan, and the Philippines. The requested funding will provide upgrades to improve the resolution of the imagery, which increases the system's ability to identify militarily significant data.
Electrical Distribution Upgrade, Hickam AFB, Hawaii	Continues the repair of Hickam's base-wide electrical distribution system and provides reliable backup power to support Wing, Joint Air Operations Center, Air National Guard and strategic lift missions.	\$8,500,000	Hickam AFB	Upgrades and repairs to the current distribution system will help to improve efficiency in delivery of electrical power. The availability of a reliable backup power supply through the optimization of the existing electrical distribution infrastructure directly impacts readiness of forces and meet mission critical requirements.
Flash Hyper-Dimensional Imaging System for Space Situational Awareness and Ballistic Missile Defense, Maui, Hawaii	Provides the capability for immediate, real-time kill assessment of a missile intercept and enhances space situational awareness utilizing hyper-dimensional digital snapshots to capture high resolution spatial, thermal, temporal, and spectral data across multiple spectral data bandwidths.	\$6,000,000	Hnu Photonics	The Flash Hyper-Spectral Imaging System captures high resolution spatial, thermal, temporal, and spectral data to rapidly assess and characterize objects for space situational awareness. This technology is unique in providing a real-time kill assessment for missile defense testing and operational missions. Proof of concept activities include simultaneous thermal analysis, real-time data for damage assessments, and determination of ballistic missile warhead composition.

<p>Hawaii Advanced Laboratory for Information Integration (HALII), Maui, Hawaii</p>	<p>Provides a service-oriented architecture-based solution to alleviate the challenges associated with cross-domain systems, networks and data to enable collaborative data sharing, data fusion, and data dissemination.</p>	<p>\$6,000,000</p>	<p>Akimeka</p>	<p>After the attacks of September 11, 2001, it was abundantly clear that the nation's intelligence community needs to be able to share data and interoperate in a much more integrated fashion. In order to facilitate such data fusing and sharing, the HALII project will enable intelligence information across disparate classification domains and network interfaces to be exchanged by the intelligence community. HALII will use the U.S. Pacific Command theater of operations to develop and validate technologies associated with information fusion, dissemination, and protection.</p>
<p>Hawaii Event Response Command Center, Kauai, Hawaii</p>	<p>Provides relevant, real-time situational information to all levels of command from the Hawaii National Guard to Hawaii State Civil Defense to civilian responders in the field.</p>	<p>\$3,150,000</p>	<p>Raytheon Solypsis</p>	<p>Federal, state and local governments have been challenged with how best to alert and protect their citizens during crisis situations. A significant problem is the multi-level coordination required for timely and effective response. The prototype Hawaii Integrated Information Command System will address this need by providing relevant, real-time situational information to all levels of command from the Hawaii National Guard to Hawaii State Civil Defense to civilian first responders in the field.</p>

Hawaii Federal Health Care Network, Hawaii	A competitive program that supports applied research, development and deployment of technology to improve access and the quality of care to service members, military families and impacted communities.	\$25,000,000	Multiple Recipients	AKAMAI II supports applied research, development and deployment of telehealth and healthcare technology, biotechnology, clinical informatics, VA/DoD systems interoperability, to improve access and the quality of care to service members, their families, and impacted communities. With a focus on programs that align closely with military medical requirements, a competitive process will be used to provide funding in Hawaii to develop advanced medical technologies and biotechnology research critical to our nation's military medicine and the warfighter. Priority will be given to innovative collaborations between Hawaii-based industries and the Department of Defense. Outside partnerships that help to bring unique expertise to research in Hawaii to solve military medical problems will also be an important factor.
Hawaii National Guard Counterdrug, Hawaii	Augments the National Guard's ongoing efforts to enhance drug interdiction at ports of entry and supports anti-drug programs targeting youths and the eradication of marijuana.	\$3,000,000	Hawaii National Guard	Funding will allow the Hawaii National Guard to maintain a personnel end strength of 49 personnel. Loss of this funding would decrease personnel to 14. The full-time end strength of 49 personnel is made up of 27 Army National Guard soldiers including 8 that are currently deployed and 22 Air National Guard Airmen on full-time active duty status in support of Title 32, Section 112. The Hawaii National Guard Counterdrug Program supports 25 federal, state, and local law enforcement agencies (LEAs) or task forces and more than 50 community based organizations and other drug demand reduction (DDR) efforts.

Hawaii Surveillance Initiative, Hawaii	Develops target identification techniques, advanced radar processing, radar transmitters, and open architecture environment for maritime domain awareness.	\$20,000,000	Multiple Contractors	The Office of Naval Research is developing technologies to enhance Navy and U.S. Coast Guard airborne surveillance capabilities. The Pacific Airborne Surveillance and Testing (PAST) program provides competitive awards to multiple companies to improve radar capabilities, such as advanced processing, improved transmitters and target identification to improve maritime domain awareness.
Hawaii Technology Development Venture, Honolulu, Hawaii	Provides competitive grants to high technology research projects for small businesses primarily in Hawaii.	\$12,000,000	Multiple	The Hawaii Technology Development Venture (HTDV) was established to promote high technology businesses in support of current and future Navy and Department of Defense programs. HTDV specializes in identifying technological expertise resident in Hawaiian small companies, conducting outreach activities to those businesses and the Department of Defense, and training companies in the business, financial, and technical aspects of applying for and performing competitive development contracts for the Department of Defense.
Hawaii Undersea Military Munitions Assessment, Oahu, Hawaii	Assesses the location, condition, and potential risk to human populations and the environment of discarded military munitions, including chemical munitions disposed off of Oahu between 1933 and 1946.	\$3,500,000	Environet and the University of Hawaii	The HUMMA project is a continuation of efforts that began in 2007. Additional funding will permit completion of a survey bounding the suspected undersea munitions disposal site and conduct sampling near munitions identified as chemical munitions that were observed in the vicinity during a recent inter-island cable survey.

High Accuracy Network Determination System-Intelligent Optical Network for Space Situational Awareness (HANDS-IONS), Maui, Hawaii	Delivers cost-efficient 24x7 global observation and surveillance of space assets and security threats using a network of ground stations connected to a central processing facility.	\$10,000,000	Oceanit	The increased use of space for scientific, commercial, and military applications is creating an increasingly crowded orbital environment. Improved Space Situational Awareness is necessary to track and characterize satellites and debris to maintain safe space operations and improve threat management. The High Accuracy Network Determination System-Intelligent Optical Network for Space Situational Awareness (HANDS-IONS) provides unique Space Situational Awareness capabilities at significantly lower cost than other technologies.
Intelligent Decision Exploration (INDEX), Honolulu, Hawaii	Develops a net-centric, unmanned systems testbed toolset to improve the effectiveness and coalition interoperability of expeditionary force structures; leverages modeling and simulation, vehicle health, and space and other situational awareness information to enhance force protection during asymmetric and coalition operations.	\$7,500,000	Referentia	Leveraging the Department of Defense's advantage in command, control, communications, and intelligence requires the defense of cyberspace, advanced network management, and net-enabled decision support tools. To support these efforts, the Intelligent Decision Exploration system provides a planning tool to enhance interoperability with coalition partners in particular. In addition, INDEX develops 3-D visualization of the battlespace, map interface and improved sensor fidelities to improve operations of unmanned vehicles. The system also creates visualization of network traffic to improve computer network defense.

Low-Earth Orbit Nanosatellite Integrated Defense Autonomous Systems, Oahu, Hawaii	Develops a low-cost, rapid response launch vehicle and an in-space communications network of microsatellites to facilitate early launch detection.	\$10,000,000	University of Hawaii	The Department of Defense's Operationally Responsive Space program is looking for ways to launch small satellite payloads quickly and cheaply. The Low-Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS) project is developing a capability at the Pacific Missile Range Facility on Kauai to launch small payloads into low earth orbit within four days of a request for around \$8 million per launch vehicle. This would provide a low cost, rapid response capability that is not available today.
Marine Corps Base, Hawaii Wave Energy Facility, Kaneohe Bay, Oahu	Continues demonstration of wave power bouys off Marine Corps Base, Kaneohe Bay in order to provide electric power to the base.	\$9,000,000	Ocean Power Technologies	This clean energy program takes advantage of one of Hawaii's most prevalent assets - waves. These high-tech bouys that sit off-shore Kaneohe Bay are transferring energy created by waves to a power supply to support the energy demands of the Marine Corps base. The project could ultimately lead to a more efficient and self-reliant method of delivering power to Hawaiian Electric's electrical grid in order to reduce reliance on foreign petroleum imports.
Maritime Directed Energy Test and Evaluation Center, Kauai, Hawaii	Prepares the Pacific Missile Range Facility for future Navy maritime directed energy test and evaluation activities.	\$3,500,000	Envisioneering	The Navy is conducting advanced research on a number of directed energy technologies, but testing these technologies in a maritime environment is essential to determining real-world performance. Currently, the Navy does not have a dedicated site to allow for the safe testing of directed energy technologies in the maritime environment. Funds would be used to study the requirements for establishing a test bed at the Pacific Missile Range Facility.

Microalgae Bio-Fuel Project, Kauai, Hawaii	Demonstrates a new environmentally enhanced concept for the production of biofuels using microalgae that is converted into biodiesel, jet fuels and other high value co-products.	\$5,500,000	Hawaii BioEnergy	This program will lead to a clean domestic source of fuel that could reduce our need for petroleum fuels in the next decade. It will enhance the Department of Defense's green initiatives by recycling carbon dioxide and cleaning up effluents. Implementation of the technology would improve our national security by minimizing oil imports and improving our economic independence.
Mobile Modular Command Center (M2C2), Honolulu, Hawaii	Provides communications, networking and command and control technologies for Marine Corps tactical missions and develops concepts of operations for Marine Corps early entry and command and control on-the-move missions.	\$4,000,000	Pelatron	<i>USA Today</i> highlighted the value of the mobile Modular Command Center (M2C2) technology saying it will "allow troops in the field to communicate with each other, their commanders, and even headquarters hundreds of miles away — all while driving over 30 miles per hour. Experts say the advanced satellite and wireless technology, developed in large part by Hawaii contractors, will save Marine lives in battle. It will also enable troops to communicate in areas where natural disasters like Hurricane Katrina...wiped out local infrastructure...The equipment...would enable war zone commanders to see where their troops are heading and how close they are to the enemy. Commanders could also use it to decide to move forward, pull out, or call in air and artillery support."
NetCentric Intelligence Node - Pacific, Honolulu, Hawaii, and San Diego, California	Focuses on the rapid collection, organization, and fusion of a wide variety of data sources to provide tactical understanding and actionable intelligence for the Department of Defense in areas such as maritime domain awareness, counter terrorism, counter piracy, and cyber threats.	\$3,000,000	Referentia and Semantic Research	The NetCentric Intelligence Node-Pacific will participate in a network of complementary Integrated Domain awareness nodes that currently span the continental U.S. Putting a node in Hawaii will allow for increased geographic distribution of integrated domain awareness nodes and will provide unprecedented, global coverage for all-source counter-threat analysis.

Pacific Data Conversion and Technology Program, Oahu, Hawaii	Converts legacy military manuals and documents into electronic files for easier access and search capacity, saving valuable resources, in particular for military maintainers.	\$2,000,000	Hawaiian Homestead Technologies	This program is a win-win for the military and the native Hawaiian community. It provides jobs to underserved Native Hawaiian communities and provides a much needed service to the Department of Defense by converts legacy military manuals and documents into electronic files for easier access and search capacity. It saves valuable funding and time for the military users and is more environmentally friendly than paper formats.
Pacific Island Unexploded Ordnance Detection and Munition Study, Oahu, Hawaii	Develops detection technologies that can rapidly narrow the search and detection of unexploded ordnance (UXO) to reduce the amount of time to delineate areas for remediation. This project will integrate airborne and ground techniques to identify UXO for remediation with a focus on detecting UXO in wet, highly weathered, and densely forested environments.	\$5,000,000	University of Hawaii	UXO detection is an acute problem for Hawaii due to over 60 years of intense use of available test and training ranges that has resulted in high UXO presence on the islands. Detection of UXO is critical to the transfer of property from the military to the communities. The trouble is that detecting UXO is very difficult and can be very costly. This project will develop methodologies that can rapidly narrow the search and detection of UXO to reduce the amount of time to delineate areas for remediation, and reduce expensive remediation of areas where UXO was incorrectly detected. The University of Hawaii is developing technologies to integrate airborne and ground techniques to find UXO in order to remediate it more quickly than current methods.

Pacific Region Interoperability Test and Evaluation Capability, Kauai, Hawaii	Creates a developmental and operational testing environment to enable distributed test and evaluation in the Pacific.	\$5,000,000	SAIC	<p>The Pacific Region Interoperability Test and Evaluation Capability (PRITEC) will enable test and evaluation (T&E) assets in the Pacific to interoperate with other ranges, test facilities, and laboratories as part of the Department of Defense's distributed T&E capability. PRITEC supports the DOD's requirement to "test like we fight." It leverages existing programs, including the Test and Evaluation Training Enabling Architecture, to provide interoperability between ranges, and the Joint Mission Environment Test Capability, the DOD's infrastructure for testing in a joint environment. In addition, PRITEC enhances T&E infrastructure in the Pacific to better support integrated ballistic missile defense tests and is developing telemetry system technologies that will enhance capability and reduce T&E costs for all DOD programs.</p>
PanSTARRS, Maui, Hawaii	Combines relatively small mirrors with very large digital cameras to observe the entire sky several times each month in order to discover and characterize Earth-approaching objects and enhance space situational awareness capabilities.	\$9,000,000	University of Hawaii	<p>The Panoramic Survey Telescope and Rapid Response System (PanSTARRS) is an innovative design for a wide-field imaging facility being developed at the University of Hawaii. By combining relatively small mirrors with very large digital cameras, UH is developing and deploying an economical observing system that will be able to observe the entire available sky several times each month. The immediate goal of PanSTARRS is to discover and characterize Earth-approaching objects, both aseroids and comets, that might pose a danger to our planet. The huge volume of images produced by this system will provide valuable data for many other kinds of scientific programs and for the Department of Defense's space situational awareness mission.</p>

<p>Pearl Harbor Navy Shipyard Equipment Modernization, Honolulu, Hawaii</p>	<p>Funds three projects to enhance the capabilities of Pearl Harbor Navy Shipyard, including a pure water delivery trailer, a pure water polishing trailer and two dive boats.</p>	<p>\$3,700,000</p>	<p>Pearl Harbor Navy Shipyard</p>	<p>Pearl Harbor Navy Shipyard provides critical services to Navy vessels. In order to reduce costs and enhance their capacity to do this important work, the shipyard has identified several projects that will enhance their capabilities. The funding will go toward three projects, including a pure water delivery trailer, a pure water polishing trailer and two dive boats.</p>
<p>Production Efficiency Program, Honolulu, Hawaii</p>	<p>Develops a comprehensive plan for the future shipyard suite of industrial corporate applications since the current suite requires a technology refresh.</p>	<p>\$2,100,000</p>	<p>Pearl Harbor Navy Shipyard</p>	<p>The PEP system will give shipyard project managers real-time awareness of delays blocking productivity and the tools to redirect resources to the delayed areas. This will provide the Navy with a higher degree of reliability of on-time completions and availabilities to complete more maintenance work with current shipyard resources.</p>

<p>Real-time Optical Surveillance Applications, Maui, Hawaii</p>	<p>Provides pathfinder research, technologies, and demonstrations for the next generation of space situational awareness electro-optical assets.</p>	<p>\$5,000,000</p>	<p>Pacific Defense Solutions</p>	<p>Real-time Optical Surveillance Applications (ROSA) technologies are being developed to address five of the top six Space Situational Awareness (SSA) shortfalls identified by the Air Force. The efforts under the ROSA program will focus on several objectives. The first objective is the development of SSA algorithms for time resolved photon counting detectors. These detectors are the most advanced in existence for detecting faint objects such as small satellites. The second is the development of capabilities for integrated tasking and fusion of networked electro-optic sensors. The third objective provides research into the extraction of SSA information such as satellite orientation from radiometric signatures. This research is especially important as it can provide SSA information from objects at very long distances or from small aperture systems. The fourth research area intends to develop new algorithms and technologies for imaging satellites during daylight hours (in sun-synchronous orbits). Most adversarial satellites of interest are sun-synchronous and more information is needed to determine what these satellites are doing during their peak observing times.</p>
<p>Solid State Amplifier for Radar and Electronic Warfare Applications, Maui, Hawaii</p>	<p>Develops and demonstrates a new solid-state amplifier module for improved electronic warfare capability in the microwave frequency band.</p>	<p>\$10,000,000</p>	<p>Trex</p>	<p>The Navy has been identified as the lead Service within the Department of Defense for electronic warfare. This project seeks to enhance the Navy's future advanced electronic attack capabilities by fabricating a series of power-combined amplifier modules, integrating and testing them with a phased array antenna and beam controller.</p>

Strategic Materials, Kauai, Hawaii	Produces technologies for the manufacture of low-cost, corrosive-resistant ceramics and ceramic matrix composite materials and continues research and manufacturing of hard, corrosion-resistant optical coatings for mirrors with space, missile defense, and commercial applications.	\$6,000,000	Trex	The strategic materials program supports efforts to advance technology to chemically grow extremely pure silicon carbide for critical defense applications. This material is ideally suited to a range of optical applications, including space surveillance and seeker optics, fast steering mirrors, and other dual-use items. Funding will manufacture prototypes to achieve additional qualifications and mature the program.
Toxic Chemicals and Hazardous Material Improvement and Remediation, Oahu, Hawaii	Funds a pilot project to provide empirical data necessary for the Department of Defense to assess the efficiency and cost effectiveness of a new polymer-based hydrogel that has shown significant capabilities in cleaning up a wide range of hazardous materials to a degree not possible with current methods.	\$5,000,000	Cellular Bioengineering	To date, the Navy has conducted small scale tests of this new polymer based hydrogel that was developed in Hawaii. The test results indicate an increase in efficiency and effectiveness and reduction in costs over current methods for cleaning up hazardous materials. A pilot program that will be overseen by the Department of Defense's Strategic Environmental Research and Development Program will provide the necessary data for the DOD to assess this new clean-up method, and, if viable, place the technology into the hands of DOD environmental experts worldwide.
Virtual Onboard Analyst for Multi-Sensor Mine Detection (VIRONA), Honolulu, Hawaii	Develops a self-learning, adaptive, multi-sensor, knowledge-based fusion decision-aid capability and creates a means to fuse knowledge-based information with multi-sensor data through a virtual onboard analyst that replicates the capabilities and flexibility of an experienced mine countermeasures analyst.	\$4,000,000	BAE	The Littoral Combat Ship includes key mine countermeasures capabilities, including the use of Vertical Take-Off and Landing tactical unmanned aerial vehicles to detect minefields. In order to reduce training costs and manning levels, the Virtual Onboard Analyst for Multi-Sensor Mine Detection (VIRONA) project will replicate the capabilities and flexibility of an experienced mine countermeasures analyst operating in real time. The system also includes modeling, simulation, visualization and analysis tools to provide effective training in complex scenarios.

Virtual Secure Enclave, Oahu, Hawaii	Supports a Joint Concept Technology Demonstration for computer network defense that uses the virtual secure enclave concept to provide network defense-in-depth protection for the U.S. Pacific Command.	\$12,500,000	U.S. Pacific Command	Protecting military networks from cyber attack is of paramount importance to the Department of Defense. The U.S. Pacific Command has identified this vulnerability as a priority for their computer network defense. This Joint Concept Technology Demonstration that is sponsored by DOD will enable stronger protection of PACOM's cyber networks.
Wave Energy Conversion for Persistent Surveillance and Communications, Maui, Hawaii	The Navy has developed a compact wave energy harvesting device based on a rotary motor design that produces 10-100 Watts of power, which provides enabling technology for persistent ISR and communications in a maritime environment. This funding will further refine the engineering, integrate the platform with sensors and conduct long-term sea trials in order to transition the technology.	\$3,500,000	Trex	The Navy has a requirement for persistent intelligence, surveillance, and reconnaissance (ISR) and communications capacity in the maritime environment. In order to provide that persistence, this project is developing technology to use energy harvested by waves to power the Navy's platforms and accompanying sensors that will be a longer lasting solution to current capabilities.